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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/766,318	01/19/2001	Shinichi Tamura	330-231	6090
7590 07/13/2004				
NIXON & VANDERHYE P.C. 8th Floor 1100 North Glebe Rd. Arlington, VA 22201-4714			EXAMINER FERGUSON, LAWRENCE D	
			ART UNIT 1774	PAPER NUMBER

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/766,318

**Applicant(s)**

TAMURA, SHINICHI

**Examiner**

Lawrence D Ferguson

**Art Unit**

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is in response to the amendment and declaration mailed May 6, 2004. Claims 1 and 6 were amended rendering claims 1-6 pending.

### ***Clarification Requested***

2. Examiner requests clarification on the recently amended claims 1 and 6. It is unclear whether Applicant intended for the added limitation(s) to read "when heated for 900°C" or to read "when heated for ten hours at 90°C". Clarification is requested.

### ***Claim Rejections – 35 USC § 103(a)***

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastes et al. (U.S. 5,789,329) in view of Sproull (U.S. 4,542,106) further in view of Machine Translation of JP-A-5-147975.

Eastes discloses boron-free glass fibers having compositions consisting of SiO<sub>2</sub>, CaO, Al<sub>2</sub>O<sub>3</sub> and MgO where the glass contains no fluorine (abstract). Eastes discloses the glass fiber compositions have values for delta T of a temperature and liquidus temperature is at least about 52°C (abstract). The reference discloses the components of the glass fibers along with its surface layer are composed of SiO<sub>2</sub> at 59 to 62.0%, CaO at 20 to 24%, Al<sub>2</sub>O<sub>3</sub> at 12 to 15%, MgO at 1 to 4% Column 3, lines 2-13). Eastes does not disclose the thickness of the silicon dioxide content. Thickness is an

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optimizable feature because the thickness directly affects the melting point of the glass fibers. It would have been obvious to one of ordinary skill in the art to optimize the components because discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch* 205 USPQ 215 and see *In re Aller* 105 USPQ 233.

Eastes does not disclose the weight percentage of SiO<sub>2</sub> in the exact range Applicant claims. Sproull teaches glass fibers consisting of 58% to 60% SiO<sub>2</sub>, 21% to 23% CaO, 11% to 13% Al<sub>2</sub>O<sub>3</sub> and 2% to 4% MgO (abstract and column 2, line 67 through column 3, line 1). Eastes and Sproull are analogous art because they are from the same field of glass fibers. Sproull teaches glass fibers of the same compositions claimed. It would have been obvious to one of ordinary skill in the art to include the 58% to 60% SiO<sub>2</sub> in the glass fibers of Eastes because Sproull teaches using SiO<sub>2</sub> at the claimed percentages results in excellent glass fibers which are highly suitable as reinforcement materials.

Neither Eastes nor Sproull explicitly teaches the surface layer of the glass fiber having an SiO<sub>2</sub> content of at least 90% by weight due to an acid treatment. According to the prior art of the invention, JP '975 teaches a heat resistant glass fiber obtained by immersing a glass fiber containing SiO<sub>2</sub>, CaO, Al<sub>2</sub>O<sub>3</sub> and MgO, in the mineral acid, hydrochloric acid at a temperature of 40 to 70°C where the surface layer of the glass fiber is a silicic glass. Additionally, JP '975 teaches the surface layer has a SiO<sub>2</sub> content of greater than 80% by weight (Abstract). All of the references are analogous art because they are from the same field of glass fibers. It would have been obvious to one

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of ordinary skill in the art, to treat the glass fibers of Eastes with the hydrochloric acid giving the surface layer a SiO<sub>2</sub> content of greater than 80% by weight, because JP '975 teaches that the HCl increases the heat resistance of the glass fiber material (abstract). The flexibility of the fiber is based on the types of materials used. Because the fiber comprises all of the components in the amount claimed, the flexibility of the fiber when heated for ten hours at 900°C would be expected to be the same.

### ***Response to Arguments***

4. Applicant's remarks to rejection under 35 U.S.C. 103(a) as being unpatentable over Eastes et al. (U.S. 5,789,329) in view of Sproull (U.S. 4,542,106) has been considered but is found to be unpersuasive. Applicant argues claims 1 and 6 are amended from comprising to consisting essentially of to make it clear that Applicant's compositions do not include titanium dioxide, a component required by Sproull. Titanium dioxide is a known colorant that does not materially affect the basic and novel characteristic(s) of the claimed invention (*In re Herz*, 537 USPQ 461, 463) as noted in M.P.E.P. 2111.03. Applicant argues the glass fiber of Eastes has no discrete surface layer rich in SiO<sub>2</sub> making the fiber difficult to treat with acid. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). JP '975 teaches a heat resistant

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glass fiber obtained by immersing a glass fiber containing  $\text{SiO}_2$ ,  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$  and  $\text{MgO}$ , in the mineral acid, hydrochloric acid at a temperature of 40 to 70°C where the surface layer of the glass fiber is a silicic glass, where the surface layer has a  $\text{SiO}_2$  content of greater than 80% by weight (Abstract). Applicant maintains it is difficult to treat the fiber of Eastes because the silicon dioxide amount is too high. Sproull teaches glass fibers consisting of 58% to 60%  $\text{SiO}_2$ , 21% to 23%  $\text{CaO}$ , 11% to 13%  $\text{Al}_2\text{O}_3$  and 2% to 4%  $\text{MgO}$  (abstract and column 2, line 67 through column 3, line 1), which is not difficult to form a surface layer rich in silica because it meets the claimed range as disclosed by Applicant. Applicant argues the titanium dioxide content of Sproull cannot be easily dissolved by the mineral acids. The 1 weight percent of titanium dioxide in Sproull will not materially affect the basic and novel characteristic(s) or functionality of the claimed invention.

### ***Conclusion***

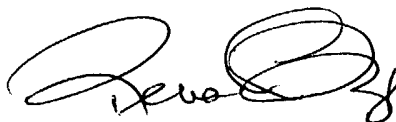
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence Ferguson  
Patent Examiner  
AU 1774

  
**RENA DYE**  
**PRIMARY EXAMINER**  
*Supervisory*  
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